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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,762	06/08/2001	Sang-Young Lee	A34350 PCT U	9624
21003	7590	11/17/2004	EXAMINER	
BAKER & BOTTS 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			VO, HAI	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/857,762

Applicant(s)

LEE ET AL.

Examiner

Hai Vo

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

1. All of the art rejections are maintained.
2. All of the 102 art rejections are now changed to the 102/103 art rejections in view of the present amendment.
3. Claim 19 is considered non-compliant because of the presence of the text in the claim. The text associated with the canceled claim should be completely removed from the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4-8, and 20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 96/27633.

Hasegawa et al (US 6,127,438) is an equivalent form of WO 96/27633 and relied on as an English translation of WO 96/27633. Hasegawa discloses a microporous film useful as a battery separator comprising a blend of polypropylene and polyethylene by using a casting (column 5, lines 45-50).

Hasegawa discloses the microporous film is produced by annealing and stretching (column 6, lines 55-65, column 8, lines 50-55). Hasegawa discloses the surface treatment irradiation with ionizing radiation improves the mechanical properties of the film (table 1). Hasegawa does not disclose the microporous film having the surface treated with an ion beam. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the microporous film of Hasegawa is identical to or only slightly different than the claimed microporous film prepared by the method of the claim, because both microporous film are formed from the same materials and useful as separator in a lithium ion secondary battery. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Hasegawa. It is the examiner's position that Hasegawa anticipates or strongly suggests the claimed subject matter.

7. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 96/27633 in view of Nishiyama et al (US 5,480,745). Hasegawa does not specifically disclose that the mix blend comprising two or more of polyolefin mixtures having a melting point difference over 10°C. Nishiyama discloses a microporous film useful as a battery separator comprising a mixture of 70 parts of polypropylene and 30 parts of polyethylene (example 1) within the claimed range. It appears that Hasegawa as modified by Nishiyama is using the same polymeric materials to form the microporous film, it is the examiner's position that the melting point difference of the two polymers in the blend would be inherently present. This is also in line with *In re Spada*. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the blend comprising polypropylene and polyethylene to form the microporous film motivated by the desire to balance the electric resistance and mechanical strength of the microporous film, which is important to the expectation of successfully practicing the invention of Hasegawa, thus further suggesting the modification.

The art rejections over Hasegawa have been maintained for the following reasons. Applicants argue that Hasegawa uses the electron beam or gamma ray to form a cross-linked structure on the surface of the microporous film. Further, Applicants state that it is difficult to form pores on the surface of the polymer film by the electron beam or gamma ray while the ion beam is used by the present invention to form pores on the surface of the polymer (see attached table

provided by Applicants in the 10/04/2004 amendment). Additionally, Applicants agree that if the ion beam is irradiated on a precursor film before stretching, it breaks the polymer chains on the precursor film and forms a physically weak site. This site is broken during stretching and functions as a "seed" for forming pore. If the ion beam is irradiated after stretching, the pores formed during stretching may be further expanded in size and distribution by the ion beam. The arguments are not found persuasive for patentability. The arguments are not commensurate in scope with the claims. Nothing in the claims is specific about the microstructure of the pores resulted from stretching being further affected by the ion beams as argued by Applicants. All claim 1 requires is a "microporous film" formed from a mixed blend containing two or more polyolefins. Therefore, the presently claimed subject matter does not exclude the microporous film of Hasegawa.

8. Claims 1, 2 and 4-8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Exsted et al (US 6,010,776). Exsted discloses a microporous film comprising a blend of polypropylene and polyethylene by using a casting (column 4, lines 45-46). It appears that Exsted is using the same polymeric materials to form the microporous film, it is the examiner's position that the melting point difference of the two polymers in the blend would be inherently present. This is in line with In re Spada, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties. Exsted

discloses the microporous film is produced by annealing and stretching (examples 1-4). Exsted discloses the microporous film having been treated with an electron beam after the pore formation (column 8, lines 25-45). Exsted discloses the surface treatment irradiation with ionizing radiation improves the hydrophilicity of the film (column 10, lines 35-40). Exsted does not disclose the microporous film having the surface treated with an ion beam. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the microporous film of Exsted is identical to or only slightly different than the claimed microporous film prepared by the method of the claim, because both microporous film are formed from the same materials and useful as separator in a lithium ion secondary battery. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Exsted. It is the examiner's position that Exsted anticipates or strongly suggests the claimed subject matter.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Exsted et al (US 6,010,776) in view of Jacoby et al (US 5,176,953). Exsted does not specifically disclose that the weight ratio of the polypropylene and polyethylene. Therefore, it is necessary and thus obvious for the skilled artisan to look to the prior art for the suitable weight ratio of such two polymers. Jacoby discloses a

microporous film useful as a diaper comprising a mixture of 95 to 5 parts by weight of polypropylene and 5 to 95 parts by weight of an ethylene-propylene block copolymer having an ethylene content of 10 to 50 wt% (column 4, lines 45-52) within the claimed range. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the blend comprising polypropylene and polyethylene having a weight ratio instantly claimed motivated by the desire to obtain the microporous film having desirable strength and breathability properties, which is important to the invention of Exsted, thus further suggesting the modification.

The art rejections over Exsted have been maintained for the following reasons. Applicants argue that Exsted uses the electron beam or gamma ray to crosslink a crosslinkable oil to the microporous film. Further, Applicants state that it is difficult to form pores on the surface of the polymer film by the electron beam or gamma ray while the ion beam is used by the present invention to form pores on the surface of the polymer (see attached table provided by Applicants in the 10/04/2004 amendment). Additionally, Applicants agree that if the ion beam is irradiated on a precursor film before stretching, it breaks the polymer chains on the precursor film and forms a physically weak site. This site is broken during stretching and functions as a "seed" for forming pore. If the ion beam is irradiated after stretching, the pores formed during stretching may be further expanded in size and distribution by the ion beam. The arguments are not found persuasive for patentability. The arguments are not commensurate in scope with the claims.

Nothing in the claims is specific about the microstructure of the pores resulted from stretching being further affected by the ion beams as argued by Applicants. All claim 1 requires is a "microporous film" formed from a mixed blend containing two or more polyolefins. Therefore, the presently claimed subject matter does not exclude the microporous film of Exsted.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai Vo
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